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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-19. (Canceled)

20. (Currently Amended) A method for improving the measurement of ~~one or more~~ a plurality of types of specific particles of a sample using a photodetector associated with a biological analysis system wherein the specific particles are adapted to emit identifiable signals based on the interaction of the specific particles with corresponding probes and wherein the identifiable signals are captured by the photodetector to yield an output signal and wherein the photodetector is adapted to be operated at different configurations that respond differently to the identifiable signals, the method comprising:

performing a first measurement of the identifiable signals with the photodetector at a first configuration such that the photodetector yields a first output signal ~~wherein the first configuration allows effective~~ representing a measurement of a first type of the plurality of types of specific particles, wherein the first ~~configuration includes a first operating parameter of the photodetector~~ measurement at the first configuration is adapted to measure a first component of the identifiable signals;

performing a second measurement of the identifiable signals with the photodetector at a second configuration such that the photodetector yields a second output signal ~~wherein the second configuration allows effective~~ representing a measurement of ~~the~~ a second type of the plurality of types of specific particles, wherein the second ~~configuration includes a second operating parameter of the photodetector~~ measurement at the second configuration is adapted to

measure a second component of the identifiable signals, the second component is weaker than the first component, and the particles of the first type of specific particles are more abundant in the sample than the particles of the second type of specific particles; and

adjusting one of the first and second output signals based on a relationship between the first and second parameters to obtain a separately scaled representation of at least one of the ~~two~~ identifiable signals wherein the representation of the identifiable signals includes generating ~~effective~~ representations of the first and second types of the plurality of types of specific particles ~~to thereby allow improved identification of the specific particles within the sample~~.

21. (Canceled)

22. (Canceled)

23. (Currently Amended) The method of claim ~~22~~ 20, wherein adjusting one of the first and second output signals comprises scaling the first output signal to a scale associated with the second configuration such that, ~~the~~ based on the second configuration, the ~~weak~~ second component is ~~effectively~~ measured and the ~~strong~~ first component is ~~effectively~~ represented based on the scaling of the ~~effectively~~ measured value from the first configuration.

24. (Currently Amended) The method of claim 23, wherein the scaling of the ~~strong~~ first component allows ~~effective~~ representation of both ~~weak and strong~~ the second and first components when a dynamic range associated with the detector is limited and would not be able to measure the ~~strong~~ first component at the second configuration.

25. (Currently Amended) The method of claim 24, wherein the detector is a charge-coupled device and the first configuration comprises ~~a short~~ an exposure duration T1 selected to ~~effectively~~ measure the ~~strong~~ first component of the identifiable signals.

26. (Currently Amended) The method of claim 25, wherein the second configuration comprises ~~a long~~ an exposure duration T2 selected to ~~effectively~~ measure ~~a weak~~ the second component of the identifiable signals, wherein the exposure duration T2 is longer than the exposure duration T1.

27. (Original) The method of claim 26, wherein the scaling of the first output signal comprises multiplying the first output signal value by a ratio T2/T1.

28. (Currently Amended) The method of claim 24, wherein the detector is a charge multiplier and the first configuration comprises ~~a low~~ an operating voltage V1 selected to ~~effectively~~ measure the ~~strong~~ first component of the identifiable signals.

29. (Currently Amended) The method of claim 28, wherein the second configuration comprises ~~a high~~ an operating voltage V2 selected to ~~effectively~~ measure ~~a weak~~ the second component of the identifiable signals, wherein the operating voltage V2 is higher than the operating voltage V1.

30. (Original) The method of claim 29, wherein the scaling of the first output signal

comprises determining the scaled value N1' of the first output signal based on a relationship log(N1')=m log(V2/V1) where m represents a slope of a curve obtained by plotting the multiplier's gain versus the voltage in a log-log manner.

31. (Original) The method of claim 30, wherein the charge multiplier comprises a photomultiplier tube.

32. (Original) The method of claim 30, wherein the charge multiplier comprises a charge intensifier.

33. (Currently Amended) A method of extending the ~~effective~~ dynamic range of a photodetector that measures detectable signals from a sample undergoing a biological analysis wherein the detectable signals ~~comprise two or more components representative of~~ represent two or more components of the sample, the method comprising:

obtaining a first output signal from the photodetector operated at a first configuration that allows ~~effective~~ measurement of a first component of the detectable signals;

obtaining a second output signal from the photodetector operated at a second configuration that allows ~~effective~~ measurement of a second component of the detectable signals wherein the second configuration is such that the first component of the detectable signals would fall outside the photodetector's dynamic range ~~at the second configuration~~; and

scaling separately the first output signal to a scale associated with the second configuration wherein the amount of scaling depends on the first and second configurations and wherein the separately scaled first output signal allows the generation of a representation of the

first output signal at the second configuration ~~thereby extending the effective dynamic range of the detector photodetector and wherein such extension of the effective dynamic range allows improved characterization of the sample having a relatively large range of relative abundances of the two or more components~~.

34. (Currently Amended) The method of claim 33, wherein the first ~~configuration is adapted to effectively measure a strong~~ component of the detectable signals is stronger than the second component of the detectable signals.

35. (Canceled)

36. (Currently Amended) The method of claim ~~35~~ 34, wherein scaling the first output signal allows representation of both ~~weak~~ the first and ~~strong~~ the second components when the dynamic range associated with the detector is limited and would not be able to measure the ~~strong~~ first component at the second configuration.

37. (Currently Amended) The method of claim 36, wherein the detector is a charge-coupled device and the first configuration comprises ~~a short~~ an exposure duration T1 selected to ~~effectively~~ measure the ~~strong~~ first component of the detectable signals.

38. (Currently Amended) The method of claim 37, wherein the second configuration comprises ~~a long~~ an exposure duration T2 selected to ~~effectively~~ measure a ~~weak~~ second component of the detectable signals, wherein the duration of T1 is longer than the duration of T2.

39. (Original) The method of claim 38, wherein the scaling of the first output signal comprises multiplying the first output signal value by a ratio T2/T1.

40. (Currently Amended) The method of claim 36, wherein the detector is a charge multiplier and the first configuration comprises ~~a low~~ an operating voltage V1 selected to ~~effectively~~ measure the ~~strong~~ first component of the detectable signals.

41. (Currently Amended) The method of claim 40, wherein the second configuration comprises ~~a high~~ an operating voltage V2 selected to ~~effectively~~ measure ~~a weak~~ the second component of the detectable signals.

42. (Original) The method of claim 41, wherein the scaling of the first output signal comprises determining the scaled value N1' of the first output signal based on a relationship log(N1')=m log(V2/V1) where m represents a slope of a curve obtained by plotting the multiplier's gain versus the voltage in a log-log manner.

43. (Original) The method of claim 42, wherein the charge multiplier comprises a photomultiplier tube.

44. (Original) The method of claim 42, wherein the charge multiplier comprises a charge intensifier.

45. (New) A method for improving the measurement of a plurality of types of specific particles of a sample using a photodetector associated with a biological analysis system wherein the specific particles are adapted to emit identifiable signals based on the interaction of the specific particles with corresponding probes and wherein the identifiable signals are captured by the photodetector to yield an output signal and wherein the photodetector is adapted to be operated at different configurations that respond differently to the identifiable signals, the method comprising:

performing a first measurement of the identifiable signals with the photodetector at a first configuration such that the photodetector yields a first output signal representing a measurement of a first type of the plurality of types of specific particles, wherein the first measurement at the first configuration is adapted to measure a first component of the identifiable signals;

performing a second measurement of the identifiable signals with the photodetector at a second configuration such that the photodetector yields a second output signal representing a measurement of a second type of the plurality of types of specific particles, wherein the second measurement at the second configuration is adapted to measure a second component of the identifiable signals, the second component is stronger than the first component, and the particles of the second type of specific particles are more abundant in the sample than the particles of the first type of specific particles; and

adjusting one of the first and second output signals based on a relationship between the first and second parameters to obtain a separately scaled representation of at least one of the identifiable signals wherein the representation of the identifiable signals includes generating representations of the first and second types of the plurality of types of specific particles.

46. (New) The method of claim 45, wherein adjusting one of the first and second output signals comprises scaling the first output signal to a scale associated with the second configuration such that, based on the second configuration, the second component is measured and the first component is represented based on the scaling of the measured value from the first configuration.

47. (New) The method of claim 46, wherein the scaling of the first component allows representation of both the second and first components when a dynamic range associated with the detector is limited and would not be able to measure the first component at the second configuration.

48. (New) The method of claim 47, wherein the detector is a charge-coupled device and the first configuration comprises an exposure duration T1 selected to measure the first component of the identifiable signals.

49. (New) The method of claim 48, wherein the second configuration comprises an exposure duration T2 selected to measure the second component of the identifiable signals, wherein the exposure duration T2 is shorter than the exposure duration T1.

50. (New) The method of claim 49, wherein the scaling of the first output signal comprises multiplying the first output signal value by a ratio T2/T1.

51. (New) The method of claim 47, wherein the detector is a charge multiplier and the first

configuration comprises an operating voltage V1 selected to measure the first component of the identifiable signals.

52. (New) The method of claim 51, wherein the second configuration comprises an operating voltage V2 selected to measure the second component of the identifiable signals, wherein the operating voltage V2 is lower than the operating voltage V1.

53. (New) The method of claim 52, wherein the scaling of the first output signal comprises determining the scaled value N1' of the first output signal based on a relationship log(N1')=m log(V2/V1) where m represents a slope of a curve obtained by plotting the multiplier's gain versus the voltage in a log-log manner.

54. (New) The method of claim 53, wherein the charge multiplier comprises a photomultiplier tube.

55. (New) The method of claim 53, wherein the charge multiplier comprises a charge intensifier.